



COMMUNICATIONS, INC.

SERVICE MANUAL

2805 Hz NOTCH FILTER

MODEL MA 344

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SERVICE INSTRUCTIONS

REGENCY MA-344

2805 Hz NOTCH FILTER

I. GENERAL DESCRIPTION

The MA-344 is a 2805 Hz Notch Filter for use in RCC systems which maintain a 2805 Hz tone on the air. It is intended to compliment the use of the MA-337 or MA-338 2805 Hz Decoder for use in the Micro Com, XL2000, or Micro Com Portable Series transceivers.

II. CIRCUIT DESCRIPTION

The filter is a 3-pole notch filter. The integrators (IC1301A, IC1301B, and IC1301D) are fed back 180° out of phase to the incoming signal. With no signal, the systems quiescent state, the outputs of the operational amplifier will be approximately 4V.

The audio enters the filter at A2 and is picked off the filter at Pin 8 of IC1301C. This signal, along with the filter signal at Pin 1 of IC1301A, when summed, determines the notch frequency. The filter output is at Pin 1 of IC1302A which corrects for the filter losses.

The response of the filter is given in Figure 1.

III. INSTALLATION

Refer to parts placement of the MA-344 and the parts placement of the radio the decoder is being installed in for the following steps -

A. Micro Com and XL2000 Series Radios

1. Remove the A2-A3 jumper.
2. Install jumpers as follows:
 - a. Connect a jumper from "A2" to "A2"
 - b. Connect a jumper from "A3" to "A3"
 - c. Connect a jumper from "G" to "G"
 - d. Connect a jumper from "P5" to "P5"

NOTE: On XLH257 and XLU1515 (Main Boards up to Rev. C) the A2-A3, G and P5 pins are not installed. The pick-up points are indicated in Figure 2 (XLH252 or XLH257) and Figure 3 (XLU152 or XLU1515).

3. Tune the filter to 2805 (see Tuning Procedure).
4. Install the option board in a secure place in the radio.

B. Micro Com P Series Radios (Refer to Figures 4 and 5)

1. Remove the wire connecting the high-side of the volume control to the PC Board.
2. Remove the pins and the stand off from the MA-344 Notch Filter PC Board.
3. Connect the yellow wire from "A2" on the Option Board to the PC Board pad where the volume control wire was removed.
4. Connect the orange wire from "A3" on the Option Board to the high-side pin of the volume control.
5. Connect a red wire from "P5" on the Option Board to the A+ pad on the Main PC Board.
6. Tune up notch filter (see tuning procedure).
7. Secure the Option Board inside the radio's case.

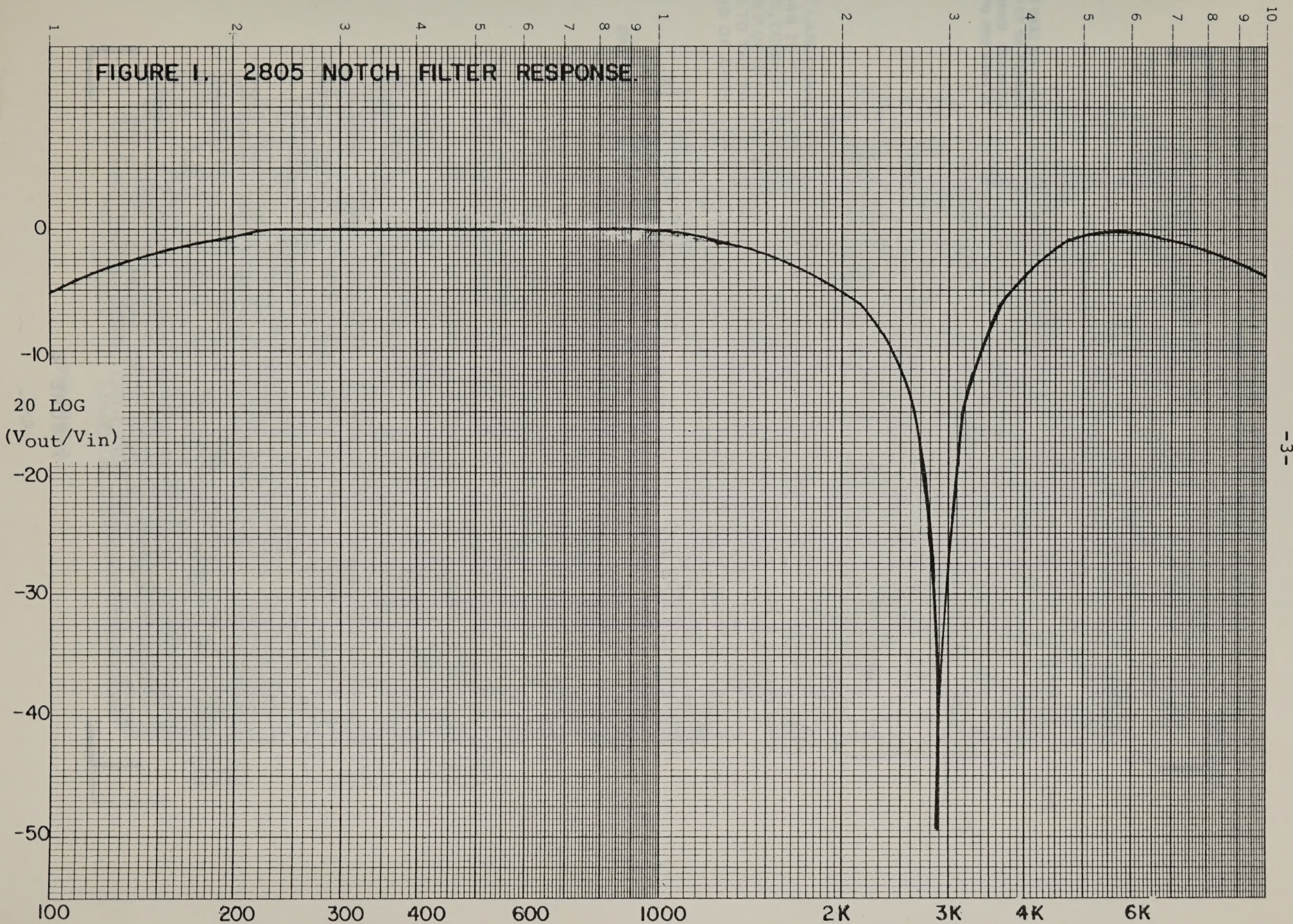
IV. TUNING PROCEDURE

- A. With the filter installed in the radio, turn on the radio.
- B. Attach a signal source to the radio and modulate it with a 2805 Hz signal.
- C. Connect an A.C. VTVM to the speaker.
- D. While observing the VTVM, adjust R1310 on the Option Board for a null reading.

V. SPECIFICATIONS

A. Input Voltage (max. at A2)	1.4 ACV (rms)
B. Supply Voltage	7 VDC (min) 14 VDC (max)
C. Supply Current	10 mA (max)
D. Notch Frequency	2500 Hz (min) 3100 Hz (max)
E. Notch Attenuation	45 dB (min)
F. Passband Attenuation	0 dB (typ)

FIGURE I. 2805 NOTCH FILTER RESPONSE.



MA 344 INSTALLATION
FOR XLU RADIOS (PRIOR TO REV D)

604-281

CUT LAND CONNECTING
C444 TO PIN 7 OF IC
401, CONNECT A2 TO
PIN 7 OF IC 401 AND
A3 TO THE FREE
END OF C444

GND

P5

604-581 C

FIGURE 3

MA-344 INSTALLATION INSTRUCTIONS FOR MCPH-A SERIES RADIO

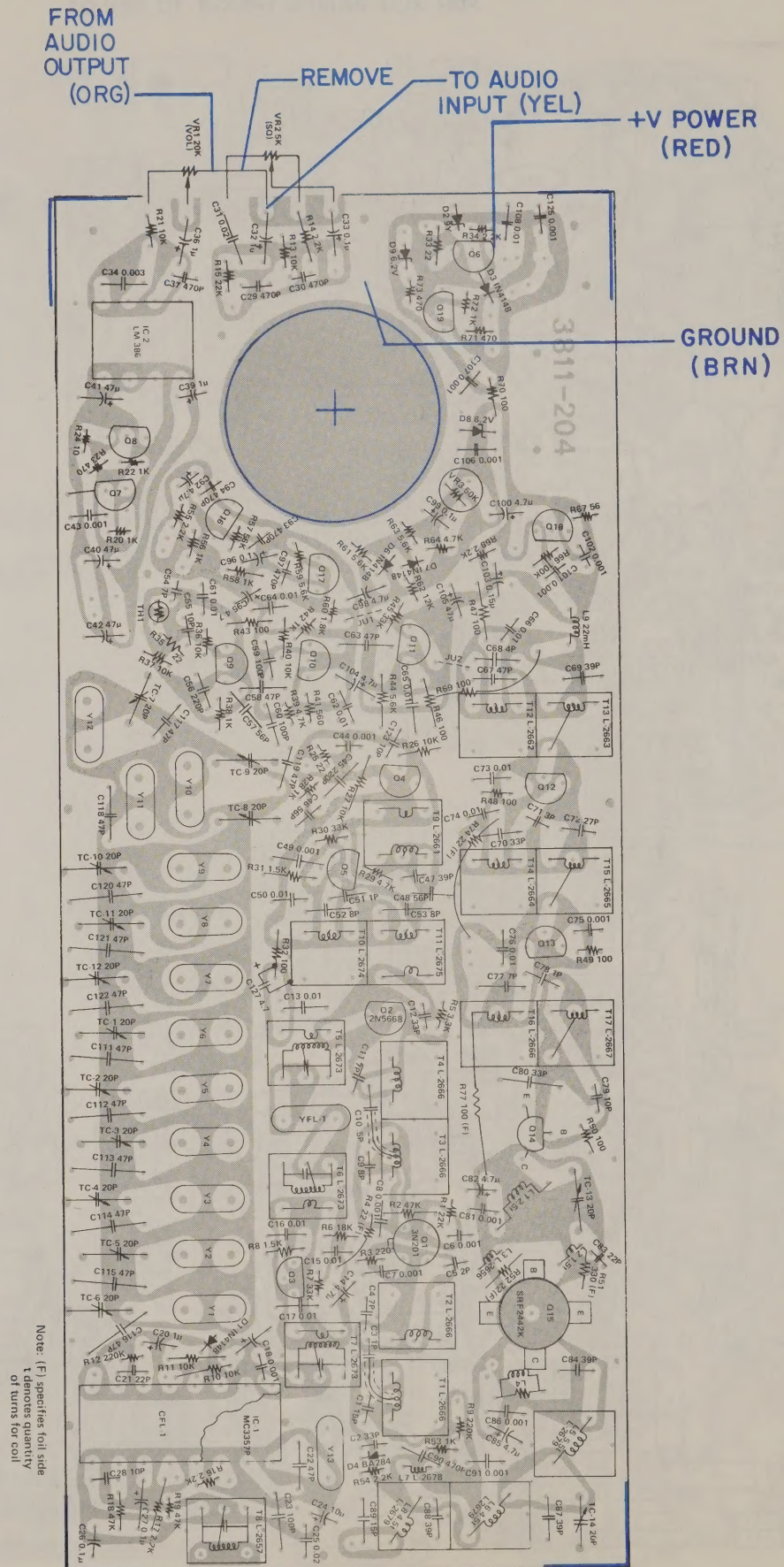


FIGURE 4

MA-344 INSTALLATION INSTRUCTIONS FOR MCP U SERIES RADIO

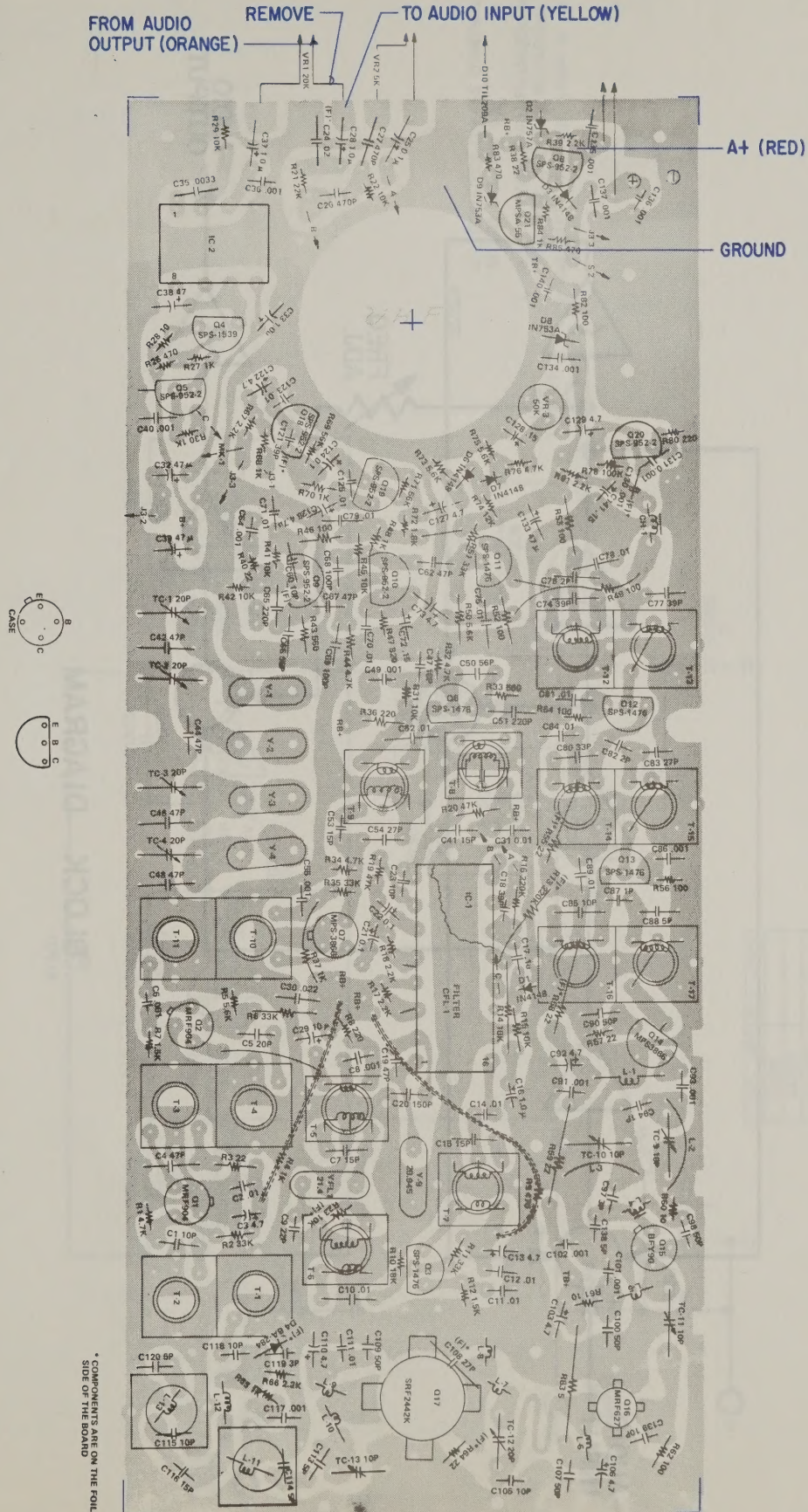
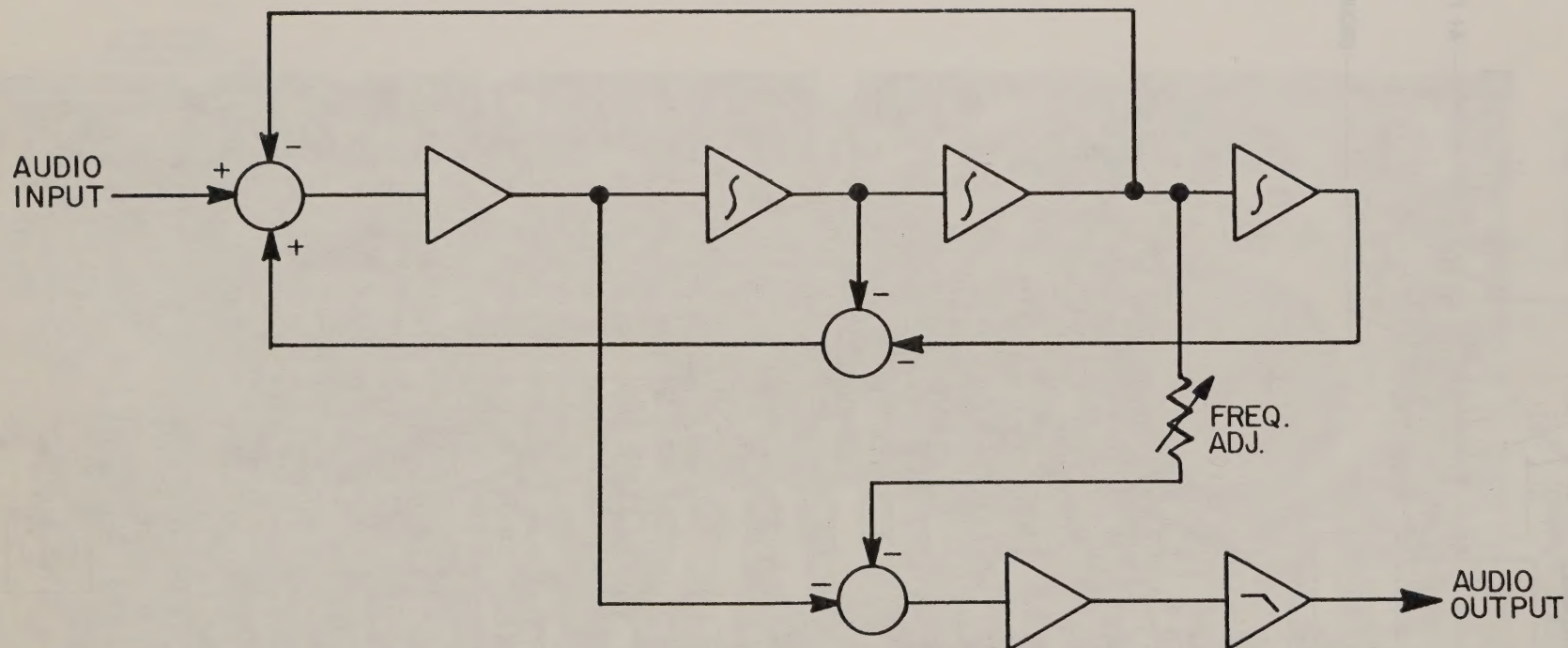


FIGURE 5



BLOCK DIAGRAM

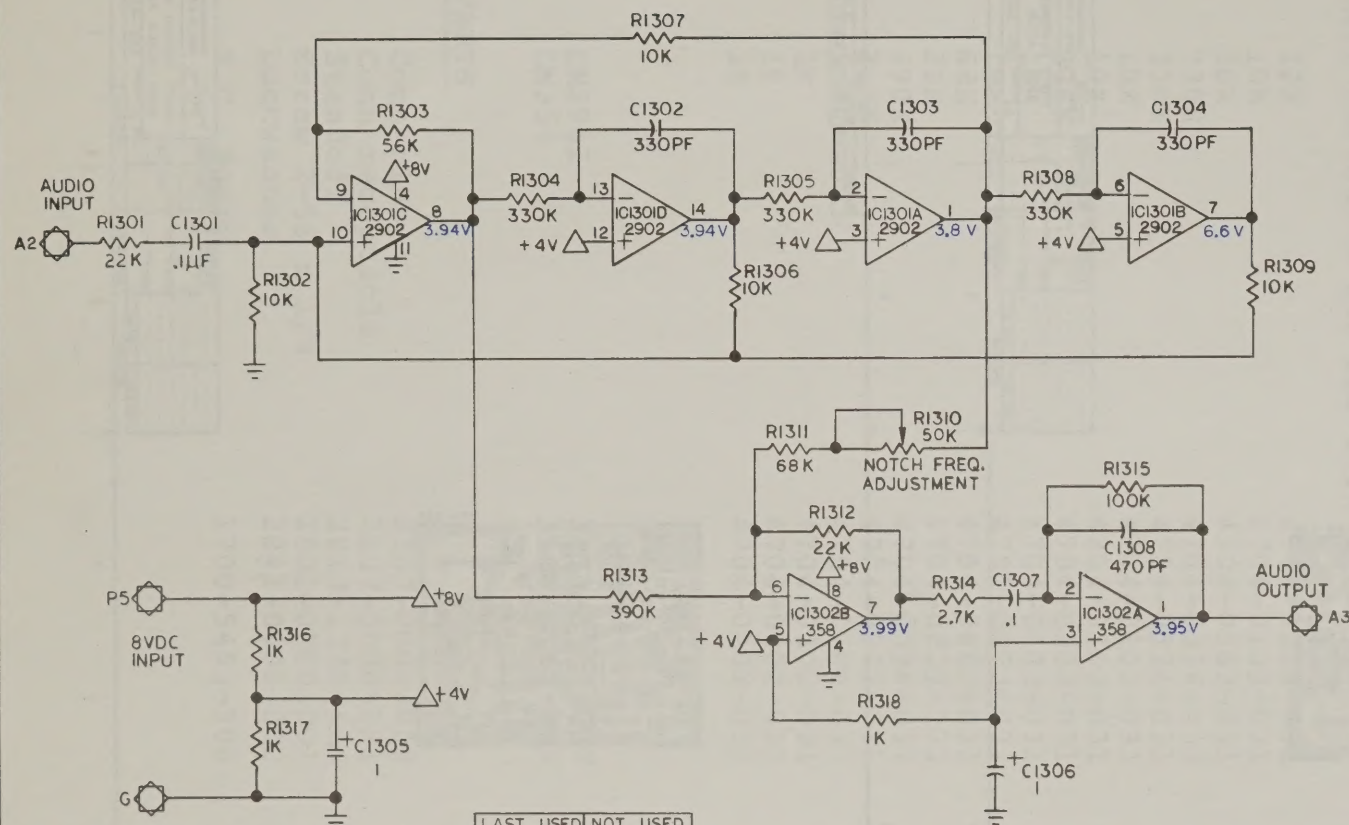
REVISIONS			
ZONE	REV	DESCRIPTION	DATE
	A	RELEASE R-560 DCD 4*20*81	5-20-81
			APPROVED

D

C

B

A



NOTES

1. ALL RESISTORS, UNLESS OTHERWISE NOTED, ARE 1/8W 5%.
2. ALL CAPACITORS VALUES, UNLESS NOTED OTHERWISE, ARE IN MICRO FARADS.
3. QUIESCENT VOLTAGES SHOWN IN RED.

LAST USED	NOT USED
R1318	
C1308	
IC1302	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE:		APPROVALS	DATE
FRACT.	DEC.	DRAWN R.D.R.	4/28/81
±	.xxx	CHECKED	
±	.xxx	QFTG. SUPV.	
MATERIAL		ENGR.	5-81
FINISH			
NEXT ASSY			
USED ON			
APPLICATION		DO NOT SCALE DWG.	

COMMUNICATIONS INC. SATELLITE BEACH, FLORIDA 32937	
SCHEMATIC MA-344 2805 NOTCH FILTER	
SIZE C	PART NUMBER 504-535
REV. A	

X - PARTS LIST

<u>REFERENCE DESIGNATOR</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>SCHEMATIC ZONE</u>
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CAPACITORS

C1301	cap rad mon .1 mf	1518-0104-004	C-4
C1302	cap rad mon 330pF 5%	1518-0331-001	C-3
C1303	cap rad mon 330pF 5%	1518-0331-001	C-2
C1304	cap rad mon 330pF 5%	1518-0331-001	C-2
C1305	cap 1mF AL E 20%	1513-5455-105	B-4
C1306	cap 1mF AL E 20%	1513-5455-105	B-2
C1307	cap rad mon .1mF	1518-0104-004	B-2
C1308	cap rad mon 470pF 5%	1518-0471-001	B-2

RESISTORS (All resistors are car film 1/8 W 5%)

R1301	22K	4704-0223-031	C-4
R1302	10K	4704-0103-031	C-4
R1303	56K	4704-0563-031	C-4
R1304	330K	4704-0334-031	C-3
R1305	330K	4704-0334-031	C-3
R1306	10K	4704-0103-031	C-3
R1307	10K	4704-0103-031	D-3
R1308	330K	4704-0334-031	C-2
R1309	10K	4704-0103-031	C-2
R1310	res var 47K	4751-0473-001	B-2
R1311	68K	4704-0683-031	B-3
R1312	22K	4704-0223-031	B-3
R1313	390K	4704-0394-031	B-3
R1314	2.7K	4704-0272-031	B-2
R1315	100K	4704-0104-031	B-2
R1316	1K	4704-0102-031	B-4
R1317	1K	4704-0102-031	B-4
R1318	1K	4704-0102-031	B-3

INTEGRATED CIRCUITS

IC1301	LM2902	3130-3157-637
IC1302	LM358	3130-3167-909

MECHANICAL PARTS

		<u>QTY USED</u>
Conn pins	2107-0000-003	4
Conn receptacle	2107-0000-001	8
Standoff	2813-1240-616	1
Screw 2-56 x 1/4	2801-0250-001	1
Lockwasher	2841-0000-002	1
P.C. Board	1700-5453-900	1

